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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/656,512  | 09/05/2003  | Yoshio Awakura       | 114GI-135B          | 8024             |
| 7590  | 06/17/2004  |                      | EXAMINER            |                  |
| Bradley N. Ruben, PC<br>Suite 5A<br>463 First Street<br>Hoboken, NJ 07030 |             |                      |                     | DINH, TUAN T     |
|   |             | ART UNIT             |                     | PAPER NUMBER     |
|   |             | 2827                 |                     |                  |

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                         |                  |
|------------------------------|-------------------------|------------------|
| <b>Office Action Summary</b> | Application No.         | Applicant(s)     |
|                              | 10/656,512              | AWAKURA ET AL.   |
|                              | Examiner<br>Tuan T Dinh | Art Unit<br>2827 |

-- The MAILING DATE of this communication appears n th cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 19 and 22-39 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 19,22-28 and 31 is/are rejected.  
 7) Claim(s) 29,30 and 32-39 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/10/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

Claims 1-18, and 20-21 are canceled in Preliminary Amendment filed in 09/05/03.

### ***Claim Objections***

1. Claim 19 is objected to because of the following informalities:

Claim 19, line 7, "magnetic thin films" should be –the magnetic thin film—for proper antecedent basis.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. Claim 31 recites the limitation "said magnetic loss material" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 19 rejected under 35 U.S.C. 102(b) as being anticipated by Seo (JP 10105961 A).

As to claim 19, Seo discloses a wiring board, see figure 1, comprising:

a board (11) of at least one layer comprising a conductor part; said conductor part (67) having a ground part (12) that is either a ground surface or has ground patterns deployed on one surface of said board (11), entire surface of said ground part is covered with a magnetic thin film (13), and

the magnetic thin film (13) deployed at least on part of said board or said conductor part.

5. Claims 19-26, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (5,835,313).

Regarding claim 19, Sato et al. discloses a wiring board, see figure 1, comprising:

a board (1-5, and 7) of at least one layer comprising a conductor part (8 and 12); said conductor part having a ground part (shielding layer 8), see column 4, lines 36-37, that is either a ground surface or has ground patterns deployed on one surface of said board, entire surface of said ground part (8) is covered with a magnetic thin film (15), column 6, lines 39-41 and

the magnetic thin film (15) deployed at least on part of said board or said conductor part.

Regarding claims 22-26, and 28, Sato et al. discloses said conductor part comprising signal line conductor patterns (12), the magnetic thin film (15) is formed on the signal line conductor patterns (12), and an insulation layer (14), column 6, line 37, interposed between the patterns (12) and the magnetic film (15), the magnetic thin film (15) is fabricated by a sputtering process, see column 6, lines 39-41, and the wiring layer having at least three layers, see figure 1.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo (JP 10105961 A) in view of Sato et al. (US Patent 5,738,931).

As to claims 22-28, Seo (JP) discloses all of the limitations of claim 1, except for said conductor part comprises signal line conductor patterns, said magnetic thin film is formed on and separately from said signal line conductor patterns, said magnetic thin film is deployed with an insulation layer interposed therebetween so as to cover said conductor patterns, said magnetic thin film is fabricated by at least one method of sputtering and vapor deposition, said magnetic thin film has a thickness within a range of 0.3 um to 20 um, and said wiring board is a multilayer printed wiring board comprising a structure of at least 3 layers.

Sato et al. shows an electronic device as shown in figure 10 comprising an insulation layer (68) separately formed between a magnetic thin film (69) and conductor coils (67), the magnetic thin film (69) fabricated by a vapor deposition (anisotropy etched), having a thickness within a range of 0.3-20um see column 10, line 67, and column 11, lines 1-2, and a wiring board is a multiplayer printed wiring board having at least 3 layers (60-61, 63, and 65-66).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a teaching's Sato et al in the wiring board of Seo (JP) for the purpose of providing signal transmissions and reducing resistance for the wiring board.

8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. ('313) in view of Sato et al ('931).

Sato ('313) does not disclose the thickness of the magnetic film within a range of 0.3-20um. However, Sato (931) shows in figure 10 that a magnetic film (69) having a thickness is 2.0um.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the thickness of a magnetic film within a range of 0.3-20um in the wiring board of Sato ('313), as taught by Sato ('931), in order to reduce a size of thickness for the wiring board.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seo (JP '961 A) or Sato et al. ('313) in view of Watanabe et al. (US Patent 5,959,813).

Seo (JP) or Sato ('313) does not disclose said magnetic loss material exhibits a DC electrical resistivity having a value larger than 500 microOhm\*cm.

Watanabe et al shows a combination read/write thin film magnetic head having a soft magnetic alloy having a resistivity larger than 500 uOhm.cm, see column 7, lines 3-12.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a magnetic material having a resistivity larger than 500 uOhm.cm in the wiring board of Seo (JP) or Sato et al. ('313), as taught by Watanabe et al., for the purpose of decreasing an eddy current loss in high frequency.

#### ***Allowable Subject Matter***

10. Claims 29-30, and 32-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 29 and 32 are allowable because the references do not disclose or render obvious in combination of the wiring board having a magnetic thin film configured of a magnetic loss material is a broad-band magnetic loss material in which maximum value  $\mu$ "max of loss factor  $\mu$ " that is imaginary component in complex permeability of said magnetic loss material exists within a frequency range of 100 MHZ to 10 GHz, and a relative bandwidth bwr is not smaller than 150% and not greater than 200% where the

relative bandwidth bwr is obtained by extracting a frequency bandwidth between two frequencies at which the value of  $\mu$ " is 50% of the maximum  $\mu$ "max and normalizing the frequency bandwidth at the center frequency thereof.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kanai et al., Koshikawa, and Yamamoto et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Tuan Dinh  
June 10, 2004.

Chairman  
Luan Thai 6/14/04  
Primary Examiner